

TOEVEZ-DOCTERBEGGD

Claims:

1. Portable, foldable electronic device (1) comprising an opened and closed use position, comprising at least:

5     – a first housing part (6) comprising at least an inner wall (62),  
      – a second housing part (9) comprising at least an inner wall (92),  
10    – a hinge mechanism (36) arranged to fold the first and the second housing parts (6, 9) in the closed position in relation to each other for a first use position, wherein the inner walls (62, 92) are against each other, remaining between the housing parts (6, 9), and in the opened position for a second use position, wherein the inner walls (62, 92) are adjacent to each other,

**characterized** in that the device (1) also comprises at least:

20    – an electronic display (8, 81, 82) fitted on at least one said inner wall (62, 92) and arranged for displaying information to the user in the opened position, when the device (1) is on the palm or on a base and the display (8, 81, 82) is directed at the user,  
25    – a third housing part (2) arranged for holding the device (1) in different use positions and comprising a first wall (23) placed transversely to the user's palm and an opposite wall (29) on the opposite side of the third housing part (2), as well as two adjacent walls (21, 22) therebetween and an upper wall (24),  
30    – wherein the hinge mechanism (36) is fitted on the side of said opposite wall (29) and arranged for folding the first and the second housing parts (6, 9) also in relation to the third housing part (2),  
35    – wherein each said adjacent wall (21, 22) is provided with at least one key button (4, 5) within the reach of the fingers for controlling the electronic functions of the device (1) and

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- wherein said first wall (23), said upper wall (24) or the edge (25) therebetween is provided with a navigation key (3) within the reach of the forefinger, equipped also with a push-button function and arranged rotatable in at least two opposite directions.
- 5 2. A device (1) according to claim 1, **characterized** in that the first and the second housing parts (6, 9) are arranged to move away from the third housing part (2) before opening in opposite directions, and that the first and the second housing parts (6, 9) placed against each other are arranged, upon closing, to be partly inserted in the third housing part (2) to reduce the outer dimensions of the device (1).
- 10 3. Device according to claim 1 or 2, **characterized** in that said upper wall (24) is provided with a key button (15) within the reach of the forefinger for opening the first and the second housing parts (6, 9) automatically by means of the hinge mechanism (36).
- 15 4. Device according to any of the claims 1 to 3, **characterized** in that it comprises electronic display means (11) arranged on at least one said adjacent wall (21, 22) and arranged for presenting information to the user in the closed position of the device (1).
- 20 5. A device (1) according to any of the claims 1 to 4, **characterized** in that said electronic display (8) comprises a partial display (81) arranged on the inner wall of the first housing part (6) and a partial display (82) arranged on the inner wall (92) of the second housing part (9), which are arranged for presenting information in at least two orientations transverse to each other for a vertical and a horizontal position of the device (1).
- 25 30 6. The device (1) according to any of the claims 1 to 5, **characterized** in that in its opened position, the third housing part (2) is on the opposite side of the device (1) in relation to the inner walls (62, 92), extending in a direction which is perpendicular to said inner walls.
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7. Device (1) according to any of the claims 1 to 6, characterized in that in its opened position, the inner walls (62, 92) are parallel and placed adjacent to each other to form a uniform inner wall.

5 8. Device (1) according to any of the claims 1 to 7, characterized in that one of the housing parts (2, 6, 9) is provided with electronic image sensor means for still and/or video images, wherein said buttons (4, 5) and the navigation key (3) are also arranged for their control.

10 9. A device (1) according to claim 8, characterized in that the electronic image sensor means comprise a turnable camera arm (18) extending from the third housing part (2) in between the first and the second housing parts (6, 9), provided with a space (34, 35) and a transparent housing (32, 33) for the camera arm (18) and for protecting it.

15 10. A device (1) according to any of the claims 1 to 9, characterized in that the hinge mechanism (36) comprises a hinge system (39) arranged for folding the first and the second housing parts (6, 9) in relation to each other and the third housing part (2), an ejector mechanism (37) arranged to eject the first and the second housing parts (6, 9) wholly and the hinge system (39) partly from the third housing part (2), and an unfolding mechanism (38) arranged to assist in the opening of the first and the second housing parts (6, 9).

20 25 11. Device (1) according to any of the claims 1 to 10, characterized in that the navigation key (3) is a rotatable roll or a rocker key.

30 12. Device (1) according to any of the claims 1 to 11, characterized in that it is a communication device comprising at least a CMT user interface which is available in the closed position of the device (1), and at least a PDA user interface which is available in the opened position of the device (1).

35 13. A handle arrangement for a portable, foldable electronic device (1) comprising two or more positions and comprising at least two housing parts (6, 9) foldable in relation to each other and a hinge mechanism (36) arranged for connecting and folding the first and the second

housing parts (1, 9) in relation to each other, **characterized** in that the handle arrangement comprises a handle-like third housing part (2) arranged for holding the device (1) in the different use positions and comprising at least:

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- a first wall (23) placed transversely against the user's palm, and
- an opposite wall (29) on the opposite side of the third housing part (2), as well as

10 - two adjacent walls (21, 22) therebetween and an upper wall (24),

- wherein said hinge mechanism (36) or one of said housing parts (6, 9) directly is arranged to be connected on the side of said opposite wall (29), wherein the hinge mechanism (36) and the third housing part (2) are placed, for example, on opposite sides of said one housing part (6, 9), and
- wherein each said adjacent wall (21, 22) is provided with at least one key button (4, 5) within the reach of the fingers for controlling the electronic functions of the device (1) and

15 - wherein said first wall (23), said upper wall (24) or the edge (25) therebetween is provided with a navigation key (3) within the reach of the forefinger, equipped also with a push-button function and arranged rotatable in at least two opposite directions.

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25 14. A handle arrangement according to claim 13, **characterized** in that for reducing the outer dimensions of the device (1), it is arranged to store said hinge mechanism (26) in a movable manner and at least partly inside the third housing part (2), or it is arranged to insert said one housing part (6, 9) at least partly in the third housing part (2), wherein the coupling between said one housing part (6, 9) and the third housing part (2) allows at least said movement and, if necessary, also their folding in relation to each other before said movement.